

REMARKS

Claims 1-3 and 7-14 are pending in this application. By this Amendment, claims 1 and 7 are amended, and claims 13 and 14 are added. The amendments introduce no new matter. Claim 6 is canceled without prejudice or disclaimer of the subject matter thereof.

Applicants gratefully acknowledge the courtesies extended to Applicants' representative by Examiners Semenenko, Gibson and Patel in the July 12, 2006 personal interview. The substance of the interview is incorporated into the following remarks.

As discussed in the personal interview, claim 1 is the only independent claim pending in this application. The Examiners agreed that amending claim 1 to overcome the rejections would render moot the rejection of claims dependent on independent claim 1.

The Office Action rejects claim 1 under 35 U.S.C. §102(b) as being anticipated by Kobayashi (JP-2000-286125). This rejection is respectfully traversed.

Applicants submit that Kobayashi fails to disclose at least an electronic component having a substrate having multiple layers, each layer having one or more through-holes, wherein the through-holes in a layer are shifted in location so as to not overlap the through-holes in each adjacent layer, and wherein the directional orientation of the major and minor axes of the through-holes in each layer are the same as the directional orientation of the major and minor axes of the through-holes in adjacent layers, as recited in independent claim 1.

Applicants submit that Kobayashi fails to disclose an electronic component, having a substrate having multiple layers, each layer having one or more through-holes, wherein the through-holes in a layer are shifted in location so as to not overlap the through-holes in each adjacent layer. Kobayashi Figs. 2, 5 and 9 depict layers of a substrate 20 having through-holes 41 aligned and overlapping each other in adjacent layers of the substrate. Thus, Kobayashi fails to disclose at least this feature of independent claim 1.

Applicants submit that Kobayashi fails to disclose an electronic component having a substrate having multiple layers, each layer having one or more through-holes, and each through-hole having a major axis diameter and a minor axis diameter on at least one surface of the layer. Kobayashi discloses through-holes (Figs. 2, 5 and 9, reference 41; Figs. 9 and 10, reference 104) which do not have a major axis diameter and a minor axis diameter on at least one surface of the layer. Thus, Kobayashi fails to disclose at least this feature of independent claim 1.

Applicants submit that Kobayashi fails to disclose an electronic component having a substrate having multiple layers, each layer having one or more through-holes, and each through-hole having a major axis diameter and a minor axis diameter on at least one surface of the layer, wherein the directional orientation of the major and minor axes of the through-holes in each layer are the same as the directional orientation of the major and minor axes of the through-holes in adjacent layers. Kobayashi discloses through-holes having major and minor axes wherein the direction of orientation of the major and minor axes of the through-holes in each layer vary from the direction of orientation of the major and minor axes of the through-holes in adjacent layers. Kobayashi Figs. 1-8, reference 40. Thus, Kobayashi fails to disclose at least this feature of independent claim 1.

For at least the above reasons, Applicants submit that Kobayashi fails to disclose all features of independent claim 1. Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §102(b) as being anticipated by Kobayashi is respectfully requested.

The Office Action further rejects claim 1 under 35 U.S.C. §103(a) as being obvious over Sen (U.S. Patent No. 5,414,222) in view of Higgins (U.S. Patent No. 5,117,069). This rejection is respectfully traversed.

Applicants submit that neither Sen nor Higgins, alone or in combination, teach or suggest an electronic component comprising a substrate having multiple layers, each layer

having one or more through-holes, each through-hole having a conductor disposed therein for electrically connecting one surface of the layer to the other surface of the layer, and each through-hole having a major axis diameter and a minor axis diameter on at least one surface of the layer, wherein the through-holes in the layer are shifted in location so as to not overlap the through-holes in each adjacent layer, and wherein the directional orientation of the major and minor axes of the through-holes in each layer are the same as the directional orientation of the major and minor axes of the through-holes in adjacent layers, as recited in independent claim 1.

Applicants submit that Sen fails to teach or suggest wherein the through-holes in a layer are shifted in location so as to not overlap the through-holes in each adjacent layer. Sen discloses only a through-hole 24 through a single layer 20 of a substrate, connecting conductive leads 21 and 31 on opposite surfaces of the substrate 20. Sen fails to teach or suggest through-holes in a layer shifted in location so as to not overlap the through-holes in each adjacent layer. Sen is silent on the location of through-holes in adjacent layers. Higgins fails to make up for this deficiency of Sen.

Higgins teaches through-holes which overlap in direct alignment in adjacent layers of the substrate. Higgins Fig. 2, references 40, 42, 44 and 46; Fig. 5, reference 40. Thus, Applicants submit that neither Sen nor Higgins, alone or in combination, teach or suggest this feature of independent claim 1.

Applicants submit that neither Sen nor Higgins teaches or suggests wherein the directional orientation of the major and minor axes of the through-holes in each layer are the same as the directional orientation of the major and minor axes of the through-holes in the adjacent layers. Sen teaches through-holes in which the directional orientation of the major and minor axes of the through-holes vary. Sen Fig. 1, references 14A and 14B. Higgins fails to make up for this deficiency of Sen. Higgins is silent on through-holes having a major axis

diameter and a minor axis diameter, and on the directional orientation of the major and minor axes of the through-holes. Higgins teaches through-holes which are drilled or punched through the layers of the substrate. Higgins, Abstract; col. 5, lines 26-28. Further, Higgins discusses a diameter (singular) for each through-hole. Higgins, col. 6, lines 42-56. Thus, Applicants submit that neither Sen nor Higgins, alone or in combination, teach or suggest this feature of independent claim 1.

For at least these reasons, Applicants submit that neither Sen nor Higgins, alone or in combination, teach or suggest all features of independent claim 1. Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §103(a) over Sen in view of Higgins is respectfully requested.

The Office Action rejects claim 7 under 35 U.S.C. §102(b) as being anticipated by Kobayashi. Claim 7 is dependent on independent claim 1. As discussed above and in the personal interview, Applicants submit that independent claim 1 is patentable over Kobayashi. Claim 7 inherits all features of independent claim 1, and is patentable for at least that reason, as well as for the additional features it recites. Withdrawal of the rejection of claim 7 under 35 U.S.C. §102(b) is respectfully requested.

The Office Action rejects claims 2, 6, 7 and 9 under 35 U.S.C. §103(a) as being obvious over Sen in view of Higgins. This rejection is respectfully traversed. As discussed above and in the personal interview, Applicants submit that claim 1 is patentable over Sen and Higgins. Claims 2, 6, 7 and 9 are dependent on independent claim 1, and inherit all features thereof. Applicants submit that claims 2, 6, 7 and 9 are patentable for at least this reason, as well as for the additional features they recite. Withdrawal of the rejection of claims 2, 6, 7 and 9 under 35 U.S.C. §103(a) over Sen in view of Higgins is respectfully requested.

The Office Action rejects claims 3 and 8 under 35 U.S.C. §103(a) as being obvious over Sen in view of Higgins and in view of Hanson (U.S. Patent No. 5,841,075). This

rejection is respectfully traversed. As discussed above and in the personal interview, Applicants submit that claim 1 is patentable over Sen and Higgins. Claims 3 and 8 are dependent on independent claim 1 and inherit features thereof. Applicants respectfully submit that claims 3 and 8 are patentable for at least this reason, as well as for the additional features they recite. Withdrawal of the rejection of claims 3 and 8 under 35 U.S.C. §103(a) over Sen in view of Higgins and Hanson is respectfully requested.

The Office Action rejects claims 10-12 under 35 U.S.C. §103(a) as being obvious over Sen in view of Kobayashi and in view of Kitahara (U.S. Patent No. 6,273,588). This rejection is respectfully requested. Claims 10-12 are dependent on independent claim 1, and inherit all features thereof. As discussed above and in the personal interview, Applicants submit that independent claim 1 is patentable over Sen and Higgins. Claims 10-12 are dependent on independent claim 1, and inherit all features thereof. Applicants submit that claims 10-12 are patentable for at least this reason, as well as for the additional features they recite. Withdrawal of the rejection of claims 10-12 under 35 U.S.C. §103(a) over Sen in view of Kobayashi and Kitahara is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of all claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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